

CLAIMS

1. (currently amended) A system to transfer fluid via at least one pipeline from one structure to another structure (~~such as a platform (P) and a vessel (V) respectively~~), in which ~~one of the~~ comprising a first structures has having an offloading arm (5) which is movable in two planes perpendicular to each other and in which a part of the offloading arm remote from the ~~one~~ first structure is engagable with ~~the other~~ a second structure, so to allow linear and rotational movements between the structures, ~~e-h-a-r-a-c-t-e-r-i-z-e-d-i-n-t-h-a-t,~~ and wherein at least a part of the pipeline along the offloading arm, remote from the ~~one~~ first structure is attached to the offloading arm by means of at least one support moveable lengthwise relative to the offloading arm (5), and this part of the pipeline includes at least a first pipeline section (13) configured to compensate for movements between the two structures in the longitudinal direction of the offloading arm, the first pipeline section being configured as a spiral with the axis of the spiral extending generally parallel with the longitudinal direction of the offloading arm, and the spiral pipeline being capable of sustaining a spiral shape under the combined weight of the pipeline and fluid within the pipeline.
2. (currently amended) A system according to claim 1, ~~e-h-a-r-a-c-t-e-r-i-z-e-d-i-n-t-h-a-t~~ wherein the first pipeline section is configured with V-shaped rigid pipelines (13a) connected by swivel joints.
3. (currently amended) A system according to claim 2, ~~e-h-a-r-a-c-t-e-r-i-z-e-d-i-n-t-h-a-t~~ wherein the V-shaped rigid pipelines connected by swivel joints are inverted and running in a generally vertical plane, generally parallel to the offloading arm.
4. (cancelled)
5. (currently amended) A system according to ~~any one of the preceding claims~~ claim 3, ~~e-h-a-r-a-c-t-e-r-i-z-e-d-i-n-t-h-a-t~~ wherein the part of the pipeline also includes at least a second rigid pipeline section connected to supports moveable lengthwise relative to the offloading arm.
6. (currently amended) A system ~~as claimed in one of the preceding claims~~ according to claim 5, ~~e-h-a-r-a-c-t-e-r-i-z-e-d-i-n-t-h-a-t~~ wherein at least one of the supports is a wheel mounted trolley (15) arranged for movement lengthwise relative to the offloading arm (5).

7. (currently amended) A system as ~~claimed in one of the preceding claims~~ according to claim 6, characterized in that wherein the part of the pipeline remote from the one first structure and engagable with the other second structure is itself connected to or part of another support (14) moveable lengthwise relative to the offloading arm.

8. (currently amended) A system as ~~claimed in one of the preceding claims~~ according to claim 7, characterized in that wherein the pipeline is connected to the respective structures by joints (9) capable of accommodating angular and rotational movement between the pipeline and the respective structure.

9. (currently amended) A system as ~~claimed in one of the preceding claims~~ according to claim 8, characterized in that wherein the pipeline is connected to one of the respective structures by a hinge joint (9) and to the other of the respective structures by a ~~universal joint (18)~~ hinge joints.

10. (currently amended) A system as ~~claimed in one of the preceding claims~~ according to claim 9, characterized in that wherein the pipeline has at least one joint (10) arranged to compensate for thermal expansion and contraction relative to the offloading arm and/or either or both of the structures, whereby to allow optimum alignment of adjacent lengths of pipeline.

11. (currently amended) A system as ~~claimed in one of the preceding claims~~ according to claim 10, characterized in that wherein there are a plurality of pipelines (13) extending between the structures.

12. (currently amended) A system as ~~claimed in one of the preceding claims~~ according to claim 11, characterized in that wherein a joint between the offloading arm and the ~~other of the second~~ structures is formed as a pin (19b) downwardly dependant from the offloading arm, and rotatable about a vertical axis in a receptacle (21) on the ~~other of the second~~ structures.

13. (currently amended) A system as ~~claimed in one of the preceding claims~~ according to claim 12, characterized in that wherein tension (23) is applied between the other second structure and the part of the offloading arm engagable with that ~~other second~~ structure, so to resist separation of the loading arm (5) and the ~~other second~~ structure.

14. (cancelled)